

*An integrated unit  
focusing on the  
management  
decisions regarding  
one of Arizona's  
major predators*

# Mountain Lions in Arizona

## ***Lesson 6: Managing for Humans and Lions***

### **LESSON OVERVIEW**

In this lesson, students will explore the continuing discussion about the management of mountain lions in Arizona. After being assigned to play the role of a stakeholder, students must become familiar with the viewpoints of that stakeholder and then represent him or her at a town council meeting to determine if the protocol for handling human and mountain lion encounters should be modified. Portions of this lesson are © Arizona Science Center and are used with permission.

### **SUGGESTED GRADE LEVELS**

- 6 – 12

### **ENDURING UNDERSTANDINGS**

- Wildlife management is based on science as well as on the social pressures of the time.

### **OBJECTIVE**

Students will:

- Develop a critical stance in relation to mountain lion management.
- Develop an understanding of how various beliefs and values can affect the management of wildlife.

### **ARIZONA DEPARTMENT OF EDUCATION STANDARDS**

Grade	Science	Social Studies
6	S2-C2-01; S3-C2-01; S3-C2-02	S3-C4-03
7	S2-C2-01; S3-C1-03; S3-C2-01; S3-C2-02	S3-C4-03; S4-C4-08; S4-C5-07
8	S2-C2-04; S3-C2-01; S3-C2-02	S3-C4-03; S4-C4-05
High School	S2-C1-01; S2-C1-03; S2-C1-04; S3-C1-01; S3-C1-03; S3-C1-05; S3-C2-02; S3-C2-03; S3-C2-05	S3-C4-04; S3-C4-05; S4-C5-05; S4-C5-06

*Note: The full text of these standards can be found in Appendix A.*

### **TIME FRAME**

- 3 – 4 days (45 minutes each day)

### **MATERIALS**

- *Student Role* worksheets (Each worksheet describes one of 18 roles, each role to be assigned to one student)
- *Stakeholder Analysis Chart* (Photocopy onto an overhead transparency)



*An integrated unit  
focusing on the  
management  
decisions regarding  
one of Arizona's  
major predators*

- Overhead
- Butcher paper or other large paper (1 per group)
- Markers (1 set per group)
- *Position Analysis Worksheet* (1 per student)
- *Post-Meeting Worksheet* (1 per student)

### TEACHER PREPARATION

- Make an overhead of the *Stakeholder Analysis Chart*.
- Assign students to the roles and committees according to the *Role Play Positions* and *Committee Assignments* worksheets (Appendix B and C).
- Make copies of the *Student Role*, *Position Analysis*, and *Post-Meeting* worksheets for each student.

### SUGGESTED PROCEDURES

1. Ask students: How does society affect wildlife management? They can answer in the form of a journal entry or a class discussion. Discuss the idea that people with different beliefs and values can affect the management of wildlife, especially when dealing with controversial topics that may not have one correct answer. Explain that a stakeholder is a person who has an interest in a particular management decision.
2. Inform the students that they will now be given the opportunity to explore this issue firsthand. Each will be assigned the role of a stakeholder participating in a town council meeting. As a group of stakeholders representing different viewpoints, they will need to come to a consensus regarding a specific issue.
3. Hand out the *Student Role* worksheets. Read the section titled "The Problem" individually or as a class. After reading, inform the students that even though they will be playing fictitious characters, the scene they will be enacting actually happened and will likely happen again.
4. Explain that the roles are printed at the top of the page. They must read the section titled "Your Viewpoint" to understand the opinion of their character regarding this specific situation. Please remind the students that this is just one individual's viewpoint and may not represent all of the people with similar values. (Note: Many of these viewpoints were taken directly from public comments that were submitted to the Arizona Game and Fish Department.)
5. Hand out the *Position Analysis Worksheet*. Individually or with a partner who has the same role, students need to answer the questions and complete the "Beliefs Grid" based on the information provided. If they do not finish in class, they can complete the assignment as homework. *Alternative: The students can do additional research on the Internet to gain a deeper understanding of their characters' beliefs.*
6. Put the *Stakeholder Analysis Chart* on the overhead and complete it as a class, allowing each student to describe and fill in the information about his or her particular role. This will help all of the students to become familiar with the various viewpoints prior to the town council meeting. Inform the students that the neutral people must be convinced of a viewpoint if they are to support it.
7. It is now time to begin the town council meeting. Review the situation and remind students that they will each be assigned to a committee. As committee members, they must come to a consensus about this situation. At the end of the meeting, each committee will present their recommendation to the class.



*An integrated unit  
focusing on the  
management  
decisions regarding  
one of Arizona's  
major predators*

8. Break the students into their groups and allow them to work. Within their committees, they must complete a pro/con chart on a large piece of paper and come to a consensus.
9. When all groups have come to a consensus, begin presentations. Each group must select one person to speak. They must include some of the issues they discussed (pro/con chart) as well as their final consensus.
10. After each group has presented, hold a class vote on the situation.
11. If the class comes to a consensus, briefly discuss the results and hand out the *Post-Meeting Worksheet*. If the class cannot agree, allow stakeholders to “lobby” one more time for their position and vote again. Discuss the results and hand out the worksheet. *Alternative: hold a class discussion with the questions rather than having each student fill out the worksheet.*
12. Collect the *Student Role*, *Position Analysis*, and *Post-Meeting* worksheets.

### **ASSESSMENT**

- *Student Role Worksheet*
- *Position Analysis Worksheet*
- *Post-Meeting Worksheet* or discussion
- Group and class discussions

### **EXTENSIONS**

- The students can write a letter to the Education Branch of the Arizona Game and Fish Department in which they explain their viewpoint regarding mountain lion management and support it with facts.
- Encourage your students to participate in the *Hot Topics Campfire Chat* with their parents at home.

### **ARIZONA GAME AND FISH DEPARTMENT'S POSITION**

The Arizona Game and Fish Department has determined that mountain lions will be destroyed if they attack a human or when they are judged to be a substantial threat to public safety. However, dogs, cats, and other small domestic pets could be considered a natural prey base for lions. The loss of these pets from lions will not be a sufficient reason to remove a lion from its home range. The agency has considered trapping and relocating problem lions; however, due to their large home ranges, the fact that all suitable habitat is occupied; and intraspecific defense of occupied habitat, this option will not be used.



## ***Appendix A: Arizona Department of Education Standards – Full Text***

*An integrated unit  
focusing on the  
management  
decisions regarding  
one of Arizona's  
major predators*

### **Science Standards**

<b>Grade</b>	<b>Strand</b>	<b>Concept</b>	<b>Performance Objective</b>
6	2	2 – Nature of Scientific Knowledge	1 – Describe how science is an ongoing process that changes in response to new information and discoveries
	3	2 – Science and Technology in Society	1 – Propose viable methods of responding to an identified need or problem 2 – Compare solutions to best address an identified need or problem
7	2	2 – Nature of Scientific Knowledge	1 – Describe how science is an ongoing process that changes in response to new information and discoveries
	3	1 – Changes in Environment	3 – Propose possible solutions to address the environmental risks in biological or geological systems
		2 – Science and Technology in Society	1 – Propose viable methods of responding to an identified need or problem 2 – Compare solutions to best address an identified need or problem
8	2	2 – Nature of Scientific Knowledge	4 – Explain why scientific claims may be questionable if based on very small samples of data, biased samples, or samples for which there was no control
	3	2 – Science and Technology in Society	1 – Propose viable methods of responding to an identified need or problem 2 – Compare solutions to best address an identified need or problem
High School	2	1 – History of Science as a Human Endeavor	1 – Describe how human curiosity and needs have influenced science, impacting the quality of life worldwide 3 – Analyze how specific changes in science have affected society 4 – Analyze how specific cultural and/or societal issues promote or hinder scientific advancements
	3	1 – Changes in Environment	1 – Evaluate how the processes of natural ecosystems affect, and are affected, by humans 3 – Assess how human activities can affect the potential for hazards 5 – Evaluate the effectiveness of conservation practices and preservation techniques on environmental quality and biodiversity



*An integrated unit focusing on the management decisions regarding one of Arizona's major predators*

### Science Standards

Grade	Strand	Concept	Performance Objective
High School	3	2 – Science and Technology in Society	2 – Recognize the importance of basing arguments on a thorough understanding of the core concepts and principles of science and technology 3 – Support a position on a science and technology issue 5 – Evaluate methods used to manage natural resources

### Social Studies Standards

Grade	Strand	Concept	Performance Objective
6	3	4 – Rights, Responsibilities, and Roles of Citizenship	3 – Describe the importance of citizens being actively involved in the democratic process (e.g., voting, student government, involvement in political decision making, analyzing issues, petitioning public officials)
7	3	4 – Rights, Responsibilities, and Roles of Citizenship	3 – Describe the importance of citizens being actively involved in the democratic process (e.g., voting, student government, involvement in political decision making, analyzing issues, petitioning public officials)
	4	4 – Human Systems	8 – Explain how cooperation and conflict contribute to political, economic, and social activities
		5 – Environment and Society	7 – Compare different points of view and research on environmental issues (e.g., land use, natural resources, wildlife, biomes)
8	3	4 – Rights, Responsibilities, and Roles of Citizenship	3 – Describe the importance of citizens being actively involved in the democratic process (e.g., voting, student government, involvement in political decision making, analyzing issues, petitioning public officials, Selective Service Act)
	4	4 – Human Systems	5 – Explain how cooperation and conflict contribute to political, economic, and social divisions (e.g., United Nations, European Union, NAFTA)
High School	3	4 – Rights, Responsibilities, and Roles of Citizenship	4 – Demonstrate the skills and knowledge needed to accomplish public purposes (e.g., group problem solving, public speaking, petitioning and protesting)



*An integrated unit  
focusing on the  
management  
decisions regarding  
one of Arizona's  
major predators*

### **Social Studies Standards Continued**

<b>Grade</b>	<b>Strand</b>	<b>Concept</b>	<b>Performance Objective</b>
High School	3	4 – Rights, Responsibilities, and Roles of Citizenship	5 – Describe the role and influence of interest groups, lobbyists, and PAC's on elections, the political process and policy making
	4	5 – Environment and Society	5 – Analyze how humans impact the diversity and productivity of ecosystems 6 – Analyze policies and programs for resource use and management (e.g., the trade-off between environmental quality and economic growth in the twentieth century)



*An integrated unit  
focusing on the  
management  
decisions regarding  
one of Arizona's  
major predators*

## ***Appendix B: Role Play Positions***

The chart below lists the 18 roles available. Each role can be performed by two students, depending on your class size. Six roles support the Game and Fish position (Pro), six are against the Game and Fish position (Con), and six have not decided (Neutral).

The chart lists two numbers next to each role. The first number (Order) refers to the order in which you should assign the roles if you do not have 36 students in your class. For example, if you have only 30 students, you will not assign the positions associated with numbers 31 through 36. The second number (Committee) refers to the committee to which each person is assigned. Making committee assignments in this way ensures that an equal representation of positions sits on each committee.

Order	Committee	Title	Position
1	1	Animal Rights Activist	Pro
21	2	Animal Rights Activist	Pro
4	2	Outdoor Recreationist	Pro
23	3	Outdoor Recreationist	Pro
7	3	Game and Fish Employee	Pro
25	4	Game and Fish Employee	Pro
10	4	National Wildlife Organization	Pro
27	5	National Wildlife Organization	Pro
13	5	School Teacher	Pro
29	6	School Teacher	Pro
16	6	Taxpayer	Pro
19	1	Taxpayer	Pro
2	1	Wildlife Biologist	Neutral
33	3	Wildlife Biologist	Neutral
5	2	Federal Government	Neutral
34	4	Federal Government	Neutral
8	3	Governor's Aide	Neutral
35	5	Governor's Aide	Neutral
11	4	News Media	Neutral
36	6	News Media	Neutral
14	5	Housing Developer	Neutral
31	1	Housing Developer	Neutral
17	6	Rancher #1	Neutral
32	2	Rancher #1	Neutral
3	1	Hunter	Con
26	4	Hunter	Con
6	2	Houndsman	Con
28	5	Houndsman	Con
9	3	School Board Member	Con
30	6	School Board Member	Con
12	4	Parent	Con
20	1	Parent	Con
15	5	Rancher #2	Con
22	2	Rancher #2	Con
18	6	Insurance Agent	Con
24	3	Insurance Agent	Con



*An integrated unit  
focusing on the  
management  
decisions regarding  
one of Arizona's  
major predators*

## ***Appendix C: Committee Assignments***

The chart below shows the committee assignments. Use this chart to make sure that your students have gone to the correct committees. Note: Not every committee will have representation from each position. In addition, since (in most cases) two people are assigned to each position, these people do not sit on the same committee.

Committee	Members	Committee	Members
1	Animal Rights Activist	4	Game and Fish Employee
	Taxpayer		National Wildlife Organization
	Wildlife Biologist		Federal Government
	Housing Developer		News Media
	Hunter		Hunter
	Parent		Parent
2	Animal Rights Activist	5	National Wildlife Organization
	Outdoor Recreationist		School Teacher
	Federal Government		Governor's Aide
	Rancher #1		Housing Developer
	Houndsman		Houndsman
	Rancher #2		Rancher #2
3	Outdoor Recreationist	6	School Teacher
	Game and Fish Employee		Taxpayer
	Wildlife Biologist		News Media
	Governor's Aide		Rancher #1
	School Board Member		School Board Member
	Insurance Agent		Insurance Agent



*An integrated unit  
focusing on the  
management  
decisions regarding  
one of Arizona's  
major predators*

## ***Appendix D: Worksheets and Overheads***

The pages that follow contain the worksheets listed below:

- A. *Student Role* worksheets – A description of the scenario and the viewpoint of each of the stakeholders. (18 pages)
- B. *Stakeholder Analysis Chart* – An overhead to allow the students to see the viewpoints of the various stakeholders. Portions of this worksheet are © Arizona Science Center and are used with permission. (2 pages)
- C. *Position Analysis Worksheet* – A question-and-answer guide to help students understand the role they will be playing. Portions of this worksheet are © Arizona Science Center and are used with permission. (2 pages)
- D. *Post-Meeting Worksheet* – A way to guide the discussion following the activity. Portions of this worksheet are © Arizona Science Center and are used with permission. (1 page)

